

KNOWLEDGE

VOL 8 AUGUST 2014

OFFICIAL SAFETY MAGAZINE OF THE U.S. ARMY

SCRATCHING THE SURFACE



ARMY STRONG.



U.S. ARMY COMBAT READINESS/SAFETY CENTER
<https://safety.army.mil>

**ARMY SAFE
IS ARMY STRONG**

FROM THE DASAF SAFETY: AT THE CORE OF ARMY VALUES

After 33 years in this great Army, I've had a lot of time to think about values and what they mean to our force. I'd like to share some of those thoughts with you now, specifically regarding how safety enhances the values we live by as Soldiers. I hope you'll see how seamlessly safety fits into each value, and how it can affect our Soldiers' decisions for the better when framed in the context of how we live as professional Soldiers.

Loyalty: By always thinking and acting with the safety of themselves and their battle buddies in mind, Soldiers ensure their continued service and reinforce loyalty to each other, our Army and our Nation. Making smart risk decisions is one of the most loyal actions a Soldier can take throughout his or her career because it demonstrates commitment to both leadership and one's brothers and sisters in arms.

Duty: Every Soldier, regardless of rank or branch, has a responsibility to fulfill his or her obligations safely. We have a duty to mitigate the hazards that threaten mission success and an obligation to bring everyone home, whether it's at the end of a tactical mission or the conclusion of a night out with friends.

Respect: Safety is a great indicator of respect, both for one's self and others. When Soldiers insist on operating as safely as possible, they not only demonstrate personal courage — they are letting their battle buddies and leaders know they respect them enough to do the right thing, all the time.

Selfless service: Because risk-informed and assessed actions strive to secure the common good, safety is inherently selfless. Soldiers who commit themselves to safety, both on and off duty, positively add to the Army's efforts.

Honor: Viewed in the context of this value, nothing is more honorable than efforts to preserve our Soldiers, Civilians and Family Member's lives. Not only does it keep them in the fight, it sets an honorable example for others to emulate.

Integrity: The very foundation of integrity is always doing what's right. By always working to achieve the harder ("safer") course of action, method or choice over shortcuts or temporary "fun," Soldiers build integrity into everything they do. The additional byproduct — essential to mission command — is trust.

Personal courage: It's not always easy to do the right thing, especially when a decision might prove unpopular. But, by standing up for safety as an imperative to how we do business, Soldiers show a tremendous amount of personal courage and respect for themselves and their battle buddies.

As I hope you can see, safety can be one of the core elements to our Army values. Engaged leadership has made it so during the past few years, and we've worked hard to meet the chief of staff's intent and focus in instilling risk management as an integral part of our warrior culture. As we move forward, we should keep driving safety as part and parcel of everything we do — operationalizing safety. When assessing your safety programs, planning missions or carrying out simple mundane tasks, measure them using values-based questions like what could happen and why. It's not lost on Soldiers that "mission accomplished" adds value to what they do — in fact, it validates their service and sacrifice. When they see safety as part of the Warrior Ethos, they'll treat it as an unimpeachable value as well.

I couldn't have asked to end my Army career on a better note than advocating for Soldier safety and working to assist you in one of our most noble efforts. Thank you all for your engaged leadership, and the work you do daily for our Soldiers, Family Members and Civilians. I know you'll welcome your new director of Army Safety, Brig. Gen. Jeffrey Farnsworth, with the same warmth and enthusiasm you've shown me. In his and your capable hands, the Army Safety Program is sure to flourish. Thank you again, and God bless you all.

Army Safe is Army Strong!

TIMOTHY J. EDENS

Brigadier General, USA
Director of Army Safety



SCRATCHING THE SURFACE

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It was 3 a.m. on a Sunday when I received a call from the brigade staff duty NCO. As a company first sergeant, you dread the middle-of-the-night phone call because the news is never good. This call wasn't an exception. One of our Soldiers had been involved in an accident just 200 meters away from the battalion and brigade headquarters. I hung up the phone, crawled out of bed and prepared for the worst.

Since I lived only a mile or so from the accident scene, I arrived within a few minutes to see a still-smoking car in the middle of the road with its right-front tire missing. Fortunately, the Soldier wasn't injured, and the military police had already taken him to the station. This is where our investigation began.

I learned that the day before the accident the Soldier and others in the squad had been invited to a party at the squad leader's house. The squad leader did the right thing and took the Soldier's keys when he said he would be drinking alcohol. As the party progressed, the Soldier drank heavily and ate very little, and it was obvious to the group that he was very intoxicated. Since he didn't have a ride home, at about 1 a.m., the Soldier was given a place to "sleep it off" in one of the adjoining rooms. Shortly after he went to bed, the party ended and the other guests went home.

At about 2:30 a.m., the Soldier woke up and started looking for his car keys. He found them exactly where the squad leader had left them — in a bowl on the kitchen counter. The Soldier got into his car and started to drive to home, which was only three miles away, on a road bordered by unit facilities and a housing area.

The Soldier was driving about 50 mph in a 25-mph zone when he failed to negotiate a curve. His car left the road, traveled up an embankment and crashed through a fence in the housing area. Once he passed through the fence, the Soldier's vehicle struck a porch on a family's home, severing the poles that held up the structure. He also ran over the family's lawn mower, BBQ grill and a play house before striking the back porch on another home. The Soldier then attempted to go back through the damaged fence and drive away. An MP said the Soldier was still trying to drive away when he arrived on the scene, but the car wouldn't move due to the front tire being ripped from the vehicle.

After I'd looked over the accident scene, I made some phone calls to the chain of command. I also phoned the platoon leader and platoon sergeant and asked them to meet me at the MP station. Once there, I was informed that the Soldier's blood alcohol concentration was .21, more than double the legal limit of .08. At that point, the Soldier was still in no condition to answer questions, so I told the platoon sergeant to take him to a temporary room in the barracks and ensure he was monitored.

The next day, I questioned the Soldier about his reasons for drinking and driving. His response was, "I thought I could make it home because it was so close." We then learned from the Soldier that the party had taken place at his squad leader's house. At that time, the platoon leadership called in the squad leader to get his story. He told me he'd taken the Soldier's keys to ensure he couldn't drive and placed them in a bowl in his kitchen. While the squad leader's intentions were good, his plan to keep the Soldier from driving drunk ultimately failed because he did not take into account all of the risk factors or implement true risk mitigation measures. Leaving the keys in plain sight made them too easy for the Soldier to find. Had they been secured out of sight, this incident may never have occurred.

Unfortunately, the squad leader did what is done all too often in our Army — perform a risk assessment that only scratches the surface of the hazard and fails to delve into the things that truly cause accidents. Had he taken time to use proper risk management, the Soldier never would have been able to gain access to his keys.

While the outcome of this accident was bad, it could have been much worse. The Soldier who lived in the first home that was struck told me he had almost let his children camp out in the backyard that night. Had he, the children's tent would have surely been hit by the intoxicated Soldier. It was also fortunate that there wasn't anyone else driving or walking on the street where the accident took place, and that the intoxicated Soldier was not injured.



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In the end, the damage caused by this accident was limited to the monetary and disciplinary action taken on the Soldier and the squad leader who hosted the party. This accident could have been prevented with better risk management. I hope that this incident serves as a reminder that we can't just scratch the surface with our risk management measures. We must dig deeper to ensure we've done everything in our power to stop a preventable accident.



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SELF STORAGE

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While in Afghanistan on my fourth deployment, I was stationed at Forward Operating Base Findlay-Shields, which was one of the safest locations I'd been over the past 10 years. The FOB was just across the street from Jalalabad, and nothing much happened there during my entire stay — except for that one day.

FOB Findlay-Shields was primarily a base for National Guard Soldiers who worked as provincial reconstructive teams (PRT) and agricultural development teams (ADT). Their missions were more related to civilian assistance rather than combat. Our job as an active-duty cavalry squadron was to serve as the PRT's and ADT's force protection, as well as route security for the surrounding area.

On April 15, 2012, we were surprised by an enemy assault in which a vehicle-borne improvised explosive device was driven up against the back wall of our base and detonated. Immediately following the explosion, several insurgents armed with assault rifles and hand grenades made their way onto our FOB.

In an effort to encounter the least amount of resistance while inflicting the greatest amount of damage, the insurgents intentionally targeted the area where the PRTs and ADTs were housed in barracks huts, which are plywood structures about the size of a cabin that house 8-10 individuals. During the gun battle that ensued, the insurgents traveled from B-hut to B-hut, opening the doors and tossing one or more hand grenades inside. Due to the dry conditions and climate of the area, this caused several of the B-huts to catch fire. Because the Soldiers were focused on engaging the enemy and/or evacuating the area, the fires quickly spread.

My containerized housing unit was located about 50 meters from the breach point in the wall. Just after the explosion, I had quickly donned my protective equipment, grabbed my weapon and ran to where I could be of most help. While assisting an individual with a gunshot wound, I heard another loud explosion. My first thought was a second VBIED had detonated and this attack had just become much more complex and serious. A passing PRT Soldier told me their B-huts were burning and that the explosions were due to the C-4 some Soldiers had stored underneath their bunks. From the initial four B-huts that caught fire from the insurgents attack, another 22 buildings were on fire as the result of more than a dozen secondary C-4 explosions.

Once the insurgents had been defeated, the area was cordoned off. No one was allowed to get within 100 meters of the B-huts, and local national firefighters were called because there were no resident fire personnel on the FOB. The local Afghan firefighters arrived on the scene some 20 minutes later, but with the flames out of control and the constant detonation of ammunition and hand grenades from Soldiers' personal caches, the decision was made to contain the fire and prevent it from spreading rather than fighting it directly. This involved intentionally burning several other B-huts to create a fire break.

As a result of this incident, the FOB's leadership was put under the microscope. The investigation focused on the lack of inspections of Soldiers' quarters, the failure to follow Army regulations and standard operating procedures regarding the storage of explosives, and explosives safety. There was one casualty, an Afghan security contractor, and a few severe injuries.

This incident could have been so much worse. Had these explosives been properly stored, a lot of damage to equipment could have been prevented that day. The enemy we face is dangerous enough. There's no need to make it worse for ourselves.

DID YOU KNOW?

The Range & Weapons Safety Toolbox is a centralized collection of online resources for managing range operations and safe weapons handling. The toolbox hosts various references and materials, including publications, training support packages, multimedia products, ammunition and explosives information, and safety messages and alerts. The toolbox also provides links to useful sites and tools like the Defense Ammunition Center's Explosives Safety Toolbox and the Ground Risk Assessment Tool. Check it out at <https://safety.army.mil/rangeweaponssafety/>.



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ATTENTION TO DETAIL

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Aviation Safety Officer Course Class 09-003

It is something we have all heard stories about — taking off and forgetting something on preflight or throughflight until someone remembers because of a procedure or something being said. Well, it finally happened to our crew.

On the initial push into Iraq in 2003, there was a lot going on, to say the least. Everyone in the assault battalion was planning and looking for the next jump to some other dust- and sand-filled landing zone. Everything was fast-paced and very temporary, to include sleeping in the aircraft or on a cot beside it so you did not get run over or landed on in the night.

The dust was like talcum powder and was getting into everything. After torching several aircraft engines because of the sand, we did everything we could to keep it out of the engine inlets. We did not have inlet filters installed when we deployed, which would have helped. Every takeoff and landing for three months was in the dust. That meant every time we shut down, we had to immediately install the fly-away gear.

One morning after waking from a four-hour nap, we had a mission. Our pilot in command went to get briefed while the crew chief and I started the preflight. We were about halfway finished when the PC arrived and said, "Let's go! Just do the throughflight since we landed only four hours ago." I protested, to no avail. I was a new pilot still in progression, and he was a senior CW3 and the standardization instructor pilot!

Our problems started the night before when we lost the pitot cover. To keep the sand and dust out of it, the crew chief installed a homemade cover on the right-hand tube. It consisted of the outer wrapper of an MRE and some 100-mph tape. Yes, you can imagine how it looked. At least it was secure enough to resist a wind speed to 40 knots. You will hear how next.

Since the MRE wrapper had no streamer and was partially blocked by the hydraulic deck cover, I didn't notice it when I jumped into my right pilot seat. We completed our checklists and I was on the controls for a dusty takeoff. As we cleared the dust cloud, I pushed forward on the cyclic to transition to forward flight. Just as we were about to reach effective translational lift, there was a miscompare and the stabilator alarm sounded. After a power-on reset, the alarm went off again. It became quickly apparent what the problem was.

The pilot's airspeed indicator was reading zero knots while the co-pilot's airspeed indicator was reading 40 knots. About that time, our crew chief realized what had happened. I said we had a problem with the airspeed sensing system, and the crew chief asked me to look up through the green house. I saw the MRE cover on the pitot and said, "Yep, that could be the issue!"

We found a safe place to land and took care of the problem. It became obvious that taping the MRE bag to the tube wasn't a good idea. Had it come off in flight, it could have been pulled into the No. 2 engine inlet. Checklists are great, but attention to detail is just as important.



PAVEMENT PROBLEMS

DAVID L. HOUGH

www.soundrider.com

On my cross-country trip last summer, I was surprised to see that highways in general have deteriorated over the past several years. One major hazard I encountered was deep ruts in paved roads. And they were surprisingly hazardous. Crossing North Dakota on U.S. Highway 2, I encountered four distinct ruts matching the wheel tracks of heavy trucks for mile after mile. The left lane also had ruts, but they weren't as bad as the right lane, so I'd move over into the left lane when traffic allowed. At one point, my front tire hooked on a rut and the bike headed for the right lane despite my attempts to hold it. One instant I was in the left lane — the next instant I was in the right lane. Fortunately, the right lane wasn't occupied at the moment. But the unplanned lane change really got my attention. It was pretty unnerving at highway speed.

Road ruts

I'd already encountered bad ruts north of Toronto in Canada and on I-75 in Michigan, and I would find more ruts passing through the Spokane area in eastern Washington. Apparently, both heavy trucks and studded tires create ruts in the pavement, and road crews just aren't able to repave as quickly as the ruts are generated. The ruts seem to be most prevalent in northern central states and Canadian provinces where the temperature varies widely between winter and summer.

Ruts are a special problem for motorcycles because of the steering dynamics. Ruts are also unnerving in a car, but they're easier to control with four wheels and power steering. If you haven't encountered serious road ruts yet, you may wonder what all the fuss is about. But once you've had the bike suddenly dart sideways in heavy traffic, you'll be motivated to understand what's happening and curious about managing such situations.

I've observed two different types of road ruts, which we'll refer to as "truck" and "studded tire." Truck ruts are four distinct grooves matching the location of the dual rear wheels on big commercial trucks. It appears that truck ruts are formed by heavy trucks gradually pounding and squeezing asphalt pavement into the rutted shape during the warm summer months rather than tires wearing away the surface. Studded tire ruts are more common near big cities where commuters regularly use studded tires during the winter months. The studs actually grind away the road surface in the tire track areas, creating two wider, more rounded ruts.

The problem for motorcyclists is that front-end geometry reacts in strange ways to the tire running in a rut. You may have the bike weaving from one side of the lane to the other, or suddenly steering itself in a new direction. And you'll also get some curious steering feedback, such as the feeling that the front end is momentarily resisting your pressure on the grips. Let's first think about why this occurs, and then we'll make some suggestions for maintaining control.

Imagine a tire riding in the center of a deep rut. So long as the tire contacts the pavement in the center of the tread, the bike will steer straight ahead. But remember that with a two-wheeler, the front wheel constantly steers itself from one side to the other as it maintains the bike in a balanced state. It's not much of a weave, but it's a natural phenomenon with single track vehicles. The point is the bike won't follow the center of a rut exactly. And when the bike drifts over toward the side of a rut, the contact ring also moves farther over to that side. As the contact ring moves toward the side of the tire, the tire will drag more and more on that side, steering the front wheel off center. For instance, the contact ring moving position to the right will tend to steer the front wheel to the right, out of the rut.

But remember that bikes tend to roll around the center of mass. So, the front wheel steering toward the right will actually countersteer the bike into a left lean. And in this situation, leaning left will point the machine back toward the rut. Now, with the bike steering itself back toward the rut, it probably won't just center in the rut and rebalance again. If the bike continues across toward the opposite side of the rut, tire drag will again steer the contact ring out of the rut (toward the left), and that will countersteer the bike back toward the rut again.

All this off-center tire drag and leaning causes the bike to swerve around in the lane. The feeling at the handlebars can be startling because you might be resisting the swerve, but the bike moves over anyway. And if there are two ruts side by side, as with truck ruts, balance can get very twitchy as the rider fights to keep the bike pointed more or less straight down the lane. As a general rule, the geometry of the front end will tend to stabilize the bike after negotiating uneven pavement. But with continuous pavement ruts, the bike may not restore itself to a balanced condition until the tires are out of the ruts.



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Potholes

Potholes (also known as chuckholes) are formed when a small area of pavement begins to deteriorate and vehicle tires push the broken fragments out of the hole. The hole forms very quickly in wet conditions because tires slamming down into the hole force the water (and debris) out like a single shot from a powerful pressure washer. Potholes often form next to railroad tracks, creating a serious bike hazard. Potholes are dangerous for a motorcycle not only because the steep edge of a hole can push the tire sideways, but the sharp edge can bend or fracture a wheel rim.

Potholes are a fact of life every spring in and around northern cities. The road has to thaw before the maintenance crews can do any permanent repairs, and the only workable temporary fixes are to pack gravel into the holes or throw a steel plate over the hole, or both.

Frost heaves

Other road hazards in northern climates are frost heaves — big lumps of pavement pushed up into mounds by the freezing of the wet ground beneath the road. Frost heaves are common every spring on Canadian and Alaskan roads. Mounds up to a foot high can occur anywhere on the road, and you don't want to hit one of these lumps at highway speed. If you're heading for northern destinations in the spring, watch carefully and be prepared to swerve between the frost heaves.

As with potholes, the temporary fix for frost heaves is to scrape the pavement level, and apply a coat of gravel. On highways such as the Alcan, that means several gravel patches every mile, for thousands of miles. In rare instances, you'll even get a sign. Crossing a short gravel patch isn't a problem unless it happens to be in the middle of a turn, one reason to keep speed within sight distance when you're off on an adventure in the wilderness.

Negotiating surface hazards

If it isn't obvious, you need to maintain enough following distance behind other vehicles to be able to see surface hazards in time to change the bike's line. But you know that in aggressive city traffic, leaving some space ahead of you is simply an invitation for someone to dive into it. The clever motorcycle commuter learns to search more aggressively, but must also accept the probability of bike damage as part of the deal. That's why commuter bikes in northern climates tend to be beaters. The shiny bike stays home in the garage until the weather and roads settle down.

A big part of maintaining control when you encounter surface hazards such as ruts is to simply be aware of what's happening. Let's say you feel the bike start to wobble around, and you wonder whether it's a bike problem or pavement problem. Ruts are most obvious when the sun is low on the horizon, casting shadows. And even if you can't easily see the ruts, you know they are most likely to appear in the wheel track areas. Moving over to the center of the lane should confirm whether it's a pavement rut problem or a bike problem.

You'll find it easier to control the bike on a nasty surface if you're in the habit of countersteering rather than just thinking "lean." That is, to make the bike move left, force both grips toward the left. To make it move right, press both grips toward the right. Normally, it only takes a modest push on one grip to cause the bike to change direction. But when crossing a deep rut, or swerving between two potholes, it may require more powerful pushes and pulls on both grips. Focus on countersteering to make the bike hold its direction as the front wheel weaves its way into and out of the ruts.

Riding the ruts

Even on a severely rutted road, there are some areas of the lane that are typically smoother, including the center and the very edges of the lane. So, one option for riding badly rutted pavement is to stay in the center of the lane. Bear in mind that riding in the center of the lane isn't hazard free. Debris tends to get kicked out of the tire track areas toward the center or sides of the lane. And the center of the lane also collects more slippery stuff, such as oil or antifreeze drippings. It can be a big shock when a tangle of truck tire tread, an AWOL muffler or a dribble of diesel oil suddenly appears ahead of you in the center of the lane, so remember to increase your following distance to allow more maneuvering room. That also helps make you more visible to other drivers.

And what do you do when you come up behind a slow-moving vehicle? You'll have to slow down or pass. But passing on a deeply rutted road can be very unnerving, since the bike must wiggle its way through several different ruts, each causing some strange feedback. If you do decide to change lanes on a severely rutted road, try to cross the ruts at maximum angle, more like the tactics for crossing an edge trap or railroad track. Don't try to ease over. Rather, steer away from the ruts slightly, then swing back and attack them.



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The best tactic for negotiating broken pavement and pothole-laced roads is to watch the surface carefully and dodge between the holes. Cars and trucks may not be able to swerve around potholes, but a single-track motorcycle can often fit between the holes, which tend to be worse in the wheel tracks of other vehicles. All you need is a couple inches of level pavement between the bad areas.

How about bike modifications?

There really isn't much you can do to improve the behavior of a motorcycle that's trying to maintain balance on strangely shaped pavement. One thing you can do to improve your odds is to ensure your bike is well maintained. You might not notice a minor glitch on a straight, level road, but in an abnormal situation, even a minor problem can contribute to loss of control. For instance, cruising down the superslab you might not notice loose steering head bearings; but when you suddenly encounter ruts, the bike may weave all over the road. Worn bearings, loose fasteners, sagging shock springs, dry forks and under-inflated tires will all reduce stability.

The message is to keep your bike maintained, not so much for the everyday ride, but for those abnormal situations in which you expect it to perform at its limits. You already know to check your tire pressures before every ride. Don't forget to check your wheel bearings, head bearings and swing arm bearings, and snug up critical fasteners such as the pinch bolts at the fork triple clamps and axles.

Once every year or two, drain and refill your front forks, or at least top off the fluid. Also, flush and bleed your brakes. And, if you've got more than 35,000 miles on your original shock absorbers, it's probably time to replace them.

Changing routes

One primary tactic for badly damaged pavement is simply to find a different road — preferably one less used by commercial truck traffic. For instance, I'd been following U.S. Highway 2 across Minnesota and North Dakota, and my original plan was to stay on U.S. 2 across Montana. But it turned out to be a major truck route, and the pavement wasn't tough enough for the job.

If I'd realized how bad the ruts would be on U.S. 2, I'd have turned off earlier. Finally, a few miles short of the Montana border, I diverted south to pick up U.S. 200, a delightful two-lane highway with only modest traffic. Since narrow U.S. 200 isn't a favorite of the long-haul truckers, it hasn't been pounded into ruts.

I wish I'd found an alternate route heading west from Spokane rather than staying on the interstate. I could have turned off onto U.S. 2 for a few miles then followed Washington 28 and 283, quiet little state highways with less traffic and less road damage. The state highways wouldn't have added more than an hour to the day's ride but would have been much more enjoyable on a motorcycle.

Aggressive traffic on interstates and major U.S. highways has already taken a lot of fun out of motorcycling. The older roads are looking better and better for motorcycling, not only because of less aggressive traffic, but also because of less pavement damage. If you encounter nasty traffic or road damage on your next trip, get the maps out and think about alternate routes.



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WATER WISE

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As we prepared to deploy to Iraq, my brigade was inundated with information stressing the importance of proper hydration. None of us wanted to be a noncombat casualty and, thereby, a hindrance to our fellow Soldiers and the mission, so we all took the message to heart. During our six-month train up, not one Soldier succumbed to dehydration.

Why Hydrate?

The human body is made up of about 60-70 percent water. Blood is mostly water, and your muscles, lungs and brain all contain a lot of water. We need water to regulate body temperature and provide the means for nutrients to travel to our organs. Water also transports oxygen to cells, removes waste and protects joints and organs. Therefore, allowing your body to become dehydrated has a more profound effect on your overall health than just causing thirst or a headache.

We lose water through urination and by sweating. If you're very active, you lose more water than if you're sedentary. Diuretics such as caffeine pills and alcohol result in the need to increase our fluid intake because they trick the body into thinking we have more water than we need.

Symptoms of mild dehydration include chronic pains in joints and muscles, lower back pain, headaches and constipation. A strong odor to your urine, along with a yellow or amber color, indicates you might not be getting enough water. Thirst is an obvious sign of dehydration. However, you need water long before you feel thirsty.

What's Your Daily Need?

So how much water or fluids do we need to take in each day? A good rule of thumb is to take your body weight in pounds and divide it in half. That gives you the number of ounces of water per day that you need to drink. For example, if you weigh 190 pounds, you should drink at least 95 ounces of water per day. If you exercise, you should drink another 8-ounce glass of water for every 20 minutes you're active.

If you drink alcohol, you should consume at least an equal amount of water. When you're traveling on an airplane, drink 8 ounces of water for every hour you're onboard. If you live in an arid climate, even temporarily, you should add another two 8-ounce glasses per day. As you can see, your daily need for fluids can add up to quite a lot.

If we eat a healthy diet, we can get as much as 20 percent of our fluid requirements from foods. The rest should come from the beverages we drink. Of course, water is the best choice. Sodas have a lot of sugar and most are caffeinated. Drinking soda may also cause us to take in unnecessary calories, while the diuretic effect of the caffeine will actually cause you to need more fluids. For coffee drinkers, decaf is the best choice if you don't need the caffeine to help stay alert.

Sports drinks containing electrolytes, such as Gatorade or PowerAid, may be beneficial. Just ensure you look out for added sugar and calories your body doesn't need. Juices are also good because they have vitamins and nutrients. If you're like me, plain water isn't very satisfying. I add raspberry, orange or lemon flavoring to my water, which makes consuming large amounts more tolerable.

Conclusion

You might find it difficult to drink enough fluids every day. But if you make it a habit to have a water bottle handy when you're working, traveling or exercising, you will avoid the headaches, vomiting, cramping and embarrassment of being a heat casualty.

Too Much of a Good Thing

Just as Soldiers can suffer a heat injury by not drinking enough fluids, they can also drink too much. Hyponatremia is a condition where the sodium concentration in human blood is lower than normal. Causes include overhydration, skipping meals or dieting, loss of body salt or misdiagnosis and treatment for dehydration.



Those suffering from hyponatremia can exhibit symptoms such as confusion, weakness, nausea or vomiting. If you suspect a Soldier is suffering from hyponatremia, help replace salt loss and follow the measures for heat exhaustion. If symptoms persist or become more severe, evacuate the Soldier to a medical facility. To prevent hyponatremia:

- Follow fluid replacement guidelines.
- Replace lost salt by consuming meals and sports drinks as directed.
- Provide snacks or carbohydrate electrolyte beverages during long training events.
- Don't take dietary supplements.

For more information, posters and tip cards about proper hydration, visit the U.S. Army Public Health Command website at <http://phc.amedd.army.mil/Pages/default.aspx>.

FYI

Excessive heat can be deadly. The Department of the Army Directorate of Mission Assurance recommends the following tips to help Soldiers stay safe as the temperature increases throughout the summer:

1. Avoid or reduce exposure to outdoor heat

- Postpone outdoor games and activities. If you must be outdoors, try to schedule activities or work during the morning and evening hours.
- Stay in air-conditioned buildings as much as possible. Air-conditioning is one of the most protective factors against heat-related illness.
- If you do not have air-conditioning at your home, seek a location that is air-conditioned, such as a mall, movie theater, library, etc.
- Wear lightweight, light colored, breathable clothing.
- Take cool showers or baths.

2. Stay hydrated

- Drink water often but in moderation.
- Don't wait until you are thirsty to drink liquids.
- Avoid sugary, caffeinated, or alcoholic beverages.

3. Monitor high-risk individuals:

- Keep a close eye on infants, children, and people over 65 years old. They are more susceptible to heat illness.
- Never leave children or pets in parked cars even if the windows are cracked open.

4. Stay alert to heat disorders:

- Symptoms of heat exhaustion include heavy sweating, pale complexion, clammy skin, nausea, vomiting, and fainting. If you encounter a person experiencing these symptoms, move the individual to a cooler location, tell them to lie down and loosen their clothing, apply cool cloths to the person's body, encourage the individual to sip water, and seek medical attention if symptoms do not get better.
- Symptoms of heat stroke include high body temperature, rapid pulse, possible loss of consciousness, and hot and dry or moist skin. If you meet a person with these symptoms, call 911 immediately and attempt to reduce the person's body temperature with cool cloths or a cool bath.



ASLEEP AT THE WHEEL

GLENN JENSEN

I had just completed five years of active duty as an OH-58 pilot and headed off into the world of civilian aviation. I knew my 2,000-plus hours of helicopter time were going to open a lot of doors to me. I was sure that within a week or two I would be driving 747s around the world.

Imagine my surprise when American Airlines informed me, rather rudely I thought, that my rotary-wing time was of no value to them. "OK," I thought, "I'll move on to Plan B." I went to the local airport looking for a way to build fixed-wing time. The only requirement I placed on my instruction was that it had to financially conform to the budget of a newly unemployed CW2 with a wife, two kids and no real savings. In other words, it had to be free. This requirement limited my options.

I stumbled across a run-down hangar with open doors and two glistening Beech 18s sitting regally among toolboxes, old tires and junk that had obviously accumulated over years of service. Beneath one of the airplanes was a mechanic working diligently. After what seemed like an eternity, he finally recognized my existence and asked if he could help me. I explained my situation and asked if there was any way I could pirate some flight time, offering, of course, to earn my keep by mowing grass, waxing airplanes or cleaning up the hangar.

It turned out the mechanic, Al, was also the owner, pilot, janitor and a new father of an infant daughter, so his plate was full. After our conversation and an initial rebuff, Al had a change of heart. This gruff, intimidating old man of at least 38 or 40 told me to be back at 5:30 p.m. and I could fly with him. He went on to explain that he was a loner and did not really like people in his cockpit. That set the tone for the next week. He ran a night freight operation and I would be allowed to log flight time on any of the empty legs.

As 5:30 approached, I stood patiently by the hangar door. Al arrived late, as I learned would be his habit over my next week of flying with him. We quickly wheeled the Beech out and he fired up the two rumbling radials, taxied out and fire-walled the throttles. The next thing I knew we were sailing through the Midwestern skies, bound for Chicago's Midway Airport. It became apparent that flight plans, run-ups and checklists were optional in this strange world of the night freight dog.

We landed at Midway and enjoyed a strong cup of coffee in an operations center teeming with other freight dogs as ground personnel crammed package after package into the airplanes filling the ramp. As we returned to the Beech for our leg to Cleveland, we had to climb up the wing and enter the cockpit through the escape hatch because the cabin was jammed full. Off we went — no weight and balance, performance planning, run-up or flight plan.

Al was not much for conversation. In fact, he never said anything. His method of operation was quite unique. He would climb to cruise altitude, set a heading, match the props, trim the airplane and go to sleep. Being a 1940s-era machine, the 18 had no autopilot, so it would not hold its cruise setting. As we began a gradual descent, speed would increase and the props would come out of sync, causing that familiar "waaa waaa waaa" of the engines. It was this disturbing sound that doubled as Al's alarm clock. He would wake up, climb back up to altitude, retrim and go back to sleep. Aware of his lone wolf attitude, I sat like a statue, afraid of invading Al's space.

On the fifth night, I couldn't take it any longer. I made a conscious decision to take command of the airplane at the first opportunity. It was a dark, moonless night as we climbed westbound out of Flint, Michigan, and, true to form, Al was sound asleep as the eastern shore of Lake Michigan slid gently past 8,000 feet below. I silently reached up and firmly grasped the yoke, quite proud of myself, as I set a course for home. Somewhere about mid-crossing in the darkest, blackest place I have ever been, I was jarred from my smugness by a severe lurch to the left as the No. 1 engine came to a sudden stop. Before I could grasp what had happened, a hard lurch to the right followed as No. 2 followed suit.

To Al's credit, the professional in him came alive. He woke from his deep sleep and in an instant, as his new co-pilot sat in confused shock, began turning valves and manipulating mixture levers. In a matter of 30 seconds, both engines were purring like kittens and spitting blue flames from their stacks. No words were spoken for several minutes.

Al broke the uncomfortable silence by mentioning that someone had been flying his airplane. With only two of us on board, we both knew who that someone was. It seems that Al was burning off the auxiliary tank and planned on switching to mains after a



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short rest. By flying the airplane, I had inadvertently canceled his alarm service and run the aux tank dry. His embarrassment was obvious. He went on to say, "I bet you think I am a real jerk. I do this all the time. I went to sleep in the pattern at Kenosha one night and woke up in Milwaukee."

The remainder of night, my last with AI, was uneventful. I never saw him again after that, but I walked away with many lessons. You get the quality of training you pay for. Never let your guard down because in the crowded skies we work in, the other guy may not be doing what he should be doing. And never, never do anything unannounced in a cockpit. You may be turning off someone's alarm clock.



ARMY STRONG.



U.S. ARMY COMBAT READINESS/SAFETY CENTER

UP IN FLAMES

CHIEF WARRANT OFFICER 4 KELVIN L. MILLER
UAS Platoon, B Company, 4-3 Brigade Special Troops Battalion
Fort Stewart, Georgia

I have always taken safety seriously. However, after 18 years of sitting through the same safety classes over and over again, they tend to become mundane. In fact, it had gotten to the point where I could predict what the presenter was going to say. So why continue to sit through these classes? I'm an old guy, I've been married most of my career and I do not fall into any of the high-risk categories. I've learned, however, that you're never too old or experienced to do something stupid.

It was a four-day weekend — and about two days after the customary holiday safety briefing. I was in my backyard, preparing my grill to barbeque some steaks and chicken. I arranged all of the charcoal into a little pyramid at the bottom of the grill, added lighter fluid and lit it with a lighter. The coals started to burn well and it looked like I had a good fire. I then placed the lighter and lighter fluid a safe distance from the grill and went into the house to check on the meat. When I returned, the coals were turning white and the needle on the grill's temperature sensor was rising. Pretty soon I'd be cooking ... or so I thought.

I bounced back and forth between checking the grill and getting the meat ready. After about 20 minutes, though, I noticed the grill was losing heat. I checked the coals and they were not burning like they should. I decided they needed lighter fluid, so I gingerly added more. I thought the coals would immediately ignite the lighter fluid, but they didn't. For some unknown reason, I closed the top of the grill and reached for the grill lighter.

At first, I could not find the lighter, but then remembered I had placed it away from the grill. After about two minutes, I opened the cover on the grill and attempted to light the coals. But the lighter would not light. After a quick check, I tried again. I was about five feet away from the coals when the lighter ignited. What happened afterward reminded me why I should have paid more attention to those grill safety classes.

I could see the vapor from the evaporated lighter fluid in the air about a second before I started the lighter. Unfortunately, the conscious part of my brain did not send the, "Hey, stupid, don't do that!" signal to the rest of my body in time. The flame from the lighter immediately ignited the vapor, creating a huge fireball. Although the conscious part of my brain had failed me, the subconscious part did not. It was instinct that caused me to close my eyes, turn my head to the right and dive backward away from the fire.

Luckily, the fireball disappeared as fast as it appeared. I laid on the ground in shock over what had just happened. The lower part of my arms, my eyebrows and all of the hair on top of my head turned white. I looked like a frostbitten old man. I quickly gathered my senses, checked the fire and called my wife outside to help (and give me a lecture).

I was lucky. Besides the temporary loss of hair, I received only mild first-degree burns similar to sunburn. I also learned that just because I've barbequed for more than 25 years (since I was 12) that I'm never too old or experienced to have an accident. Now, I actively participate in holiday safety briefings and fire-prevention classes. I share my story with both older and younger Soldiers.

Lessons Learned

I learned a valuable lesson that day: Never be complacent around flammables. The temperature from the coals, the outside air temperature, the elapsed time and the confined space caused a dangerous buildup of lighter fluid vapor. Once a spark was added, a fireball was almost a definite result.

It is best not to use lighter fluid to start your coals. There are cheap alternatives to lighter fluid that are safer for you and better for the environment. However, if you must use lighter fluid, wear the proper personal protective equipment. Goggles will help protect your eyes, and a long-sleeved, nonflammable shirt can shield your arms. Most importantly, always have respect for fire. Complacency is a sure-fire way to send your barbecue, and possibly more, up in flames.

Boost Your Barbecue IQ

Outdoor grilling can be fun, but there is a risk for serious injury and property damage for those who are careless. The following guidelines provided by the Home Safety Council can help you minimize your risk and ensure your grilling experiences are always fun, safe and successful.



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- Stay by the grill and pay close attention the entire time food is cooking.
- Designate the grilling area a "No Play Zone" and keep kids and pets well away until grill equipment is completely cool.
- Before using, position your grill at least 10 feet away from other objects, including the house and any shrubs or bushes.
- Before using a gas grill, check the connection between the propane tank and fuel line to ensure it is working properly and not leaking.
- Never use a match to check for leaks. Instead, rub the hose line with a dishwashing liquid and water solution. If you see any bubbles or detect a leak, immediately turn off the gas and don't attempt to light the grill again until the leak is fixed.

When lighting a charcoal grill, do it right the first time. Choose pre-treated charcoal or carefully follow directions on the charcoal starter fluid can. Once you have lit the charcoal, never add more lighter fluid, as it may cause the can to explode. Use paper or kindling to help a slow-starting grill.



ARMY STRONG.



U.S. ARMY COMBAT READINESS/SAFETY CENTER

ADDICTED TO THE RUSH

RICHARD DURAN

It was a cool October morning and I had recently returned from a nine-month stint in Iraq. Before I deployed, I sold my truck in hopes of buying a new one when I got back to the states. I hadn't had the opportunity to go car shopping yet and needed a means of transportation to and from work. Luckily, my father, who lived in Las Vegas, had the time and was willing to tow my 1998 Honda Shadow 1200 to me in Jacksonville, North Carolina, until I could find my dream truck.

My dad spent a week with me in North Carolina and, although I had my motorcycle, most of the time I just opted to ride with him. I must admit that it was a little nerve-racking to ride in a car after returning from Iraq. As any combat veteran who consistently went outside the wire will tell you, every pothole or pile of trash on the side of the road in Iraq was a threat. When you return home, it's your natural instinct to think the same.

It had been more than nine months since I'd driven a privately owned vehicle. I was used to driving fully armored Mine Resistant Ambush Protected vehicles, which are relatively slow and extremely hard to see out of while operating. Once I did get back behind the wheel, though, I found driving around North Carolina lacked excitement. For reasons I can't explain, I started having withdrawals from the adrenaline rush I was so used to while driving in Iraq. I figured the perfect way to get that rush was to hop on my motorcycle.

Riding a motorcycle gave me an incredible sense of freedom and excitement. The wind, the ability to go just about anywhere and the looks I got while riding gave me a feeling I cannot describe. You just have to ride to understand the fun of it all. The speed, acceleration and agility provided the adrenaline rush I craved. As I got more comfortable on my bike, I started pushing the limits, but I always got away clean. I felt invincible. After all, I survived combat. Nothing could hurt me, could it?

One afternoon while bored, I decided to take my motorcycle into town to go shopping. I grabbed my gear, laced up my boots and headed outside. To my surprise, there was a slight drizzle in the air, just enough to pepper vehicles with tiny droplets of water but not soak the road. Against my better judgment and everything I had learned in the Motorcycle Safety Foundation's Basic and Advanced Rider Courses, I decided to head out anyway.

I was traveling on Lejeune Boulevard, about two miles outside the main gate, when, out of the corner of my eye, I spotted a nice Dodge Ram SRT 12. I took my eyes off the road for what only seemed like a second — but in reality was probably several more — when I heard the sound of screeching tires. I looked back to the road and noticed the cars ahead were all slowing down, so I applied my brakes. Unfortunately, the drizzle and oil had made the roadway very slick. To make matters worse, I'd failed to replace the brake pads after I got my bike out of storage, which, coupled with the road conditions, meant I wasn't stopping as quickly as I'd hoped.

I had two decisions — swerve to the left and go into oncoming traffic or lay down the bike and hope to get out alive. I opted for the latter. As I laid down the bike, I kicked it away from me. I slid 30 feet and became wedged underneath a car. Because I had on my PPE, I only suffered road rash on my arm from my left wrist to my elbow. My bike wasn't so lucky, though, and cost me more than \$4,000 to repair. The one bright spot was I didn't hit anyone or receive a ticket.

There are many factors that led to this mishap, which could have been prevented had I been more careful. First of all, I should have been paying attention to the road ahead instead of eyeing that Dodge Ram. Second, I knew my brakes needed replacing after being in storage for so long, but I never got around to doing it. Third, I should have been more patient and waited for the drizzling to stop before riding. Finally, I was riding entirely too fast on a surface I knew would be slippery when wet.

Today, I am a Motorcycle Safety Foundation Rider Coach. I make it a point to share the details of my accident with each class in hopes that no other rider makes the same mistakes. I want it to be an example of what not to do. Of course, I still love to ride; however, nowadays I always follow what I was taught and ride safe!



ARMY STRONG.



ALONG FOR THE RIDE

CHIEF WARRANT OFFICER 3 HOWARD ESTERBROOK
B Company, 1-171 Aviation Regiment
Wheeler Army Airfield
Schofield Barracks, Hawaii

I was tasked for a mission to insert personnel into a landing zone at 7,000 feet pressure altitude and a temperature of 30 C. We conducted a reconnaissance of the landing zone and determined the size, wind direction and approach path. Everything looked normal. As I started the approach for landing, things were going good until about the last 30 feet.

I knew we were heavy and, as I progressively brought in the power to terminate our approach, we suddenly began to drop. As I applied all power available, the rotor RPM started to droop and nothing was happening. I pushed the cyclic forward in an attempt to shallow out our angle and subsequently bounced the aircraft twice and skidded about 20 feet before coming to a rest. Nobody was hurt and the aircraft made it without a scratch; however, it scared the heck out of all of us. The last stages of this approach and landing were accomplished solely by my aircraft with minimal input from me. My passengers and I were just going along for the ride.

When operating any type of vehicle — whether it be a helicopter, tactical vehicle or even your own private motor vehicle — the term “along for the ride” means just that. You are in a situation where you have little or no control of that vehicle. This condition is most often self-induced or can occasionally be brought on by circumstances beyond your control. It is within our safety culture to identify and eliminate as many hazards as possible within our control, especially ones we create. In vehicle operations, we sometimes choose to ignore or forget that our habits are subject to complacency and can have unintended consequences.

In the incident above, it was subsequently found that we had incorrectly figured our weight, which ultimately affected the performance of the helicopter. I, as the pilot in command, had calculated the total weight of the aircraft and passengers and cargo incorrectly. I also had the co-pilot calculate our total weight but neglected to compare his numbers against mine because we were in a hurry. Besides, both of us had done this a bunch of times before, so it should be OK. Our complacency set us up for a situation where we are both not going to easily forget. In this instance, our complacency had set us up to be going along for the ride. Fortunately, nobody was hurt.

Another incident occurred while I was driving home after visiting a friend to help him work on a project. It was a rainy day with a lot of standing water on the road. When I entered a wide turn exiting the freeway off ramp, my car suddenly started to skid and I lost control. Once again, I was only along for the ride and ended up smacking the barrier. I'm a good driver (or so I thought), but why did this happen? I used this ramp many times in both dry and rainy weather and nothing ever happened. Over time, I had neglected the posted speed limit and gradually ignored it, thinking I could handle the situation. This was once again a wakeup call. Getting comfortable and lazy had cost me, again.

Sometimes our habits and attitudes about our vehicles and operating environment lead us to feel we are always in control in any and all situations. We forget that we are all human and subject to making mistakes. Complacency can set in when we choose to ignore or forget the fact that operating any type of vehicle or performing a task can be inherently risky. We should be ever vigilant in the operational environment, whether we are on or off duty, and take steps to reduce or eliminate risk through self-assessment. Ask yourself if you are getting too comfortable with the situation and the vehicle you are operating. By doing this you can help identify a situation where you may be setting up yourself to be complacent.

My experiences have taught me to never take things for granted when operating a vehicle, whether it is a helicopter, boat or PMV. Being aware of complacency will ultimately reduce the chances of you going along for the ride. The payoff is that you will live to fly another day and your co-workers, friends and loved ones will see you again.



ARMY STRONG.



ARE YOU PREPARED?

DR. DAVID FOLK

U.S. Army Materiel Command
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While in the Boy Scouts at a young age, I remember our scout master telling us to always be prepared. "For what," I would ask. "For anything," he'd respond.

As I grew older and a little wiser, I began to see the logic in the Boy Scout motto. Years ago, I had moved to Florida for my work and had my first experience with hurricanes. Yes, plural hurricanes. Three hurricanes passed through the area I was living over the summer. The first time, I was totally unprepared and learned a great lesson the hard way. Being raised in Ohio, I had experienced tornados, but nothing like this. We had no electricity for nine days, the roadways were blocked and homes were destroyed. Instead of the mile-wide path of destruction you might see from a tornado, this destruction was miles across. There was no driving to a nearby town to get supplies because adjacent towns were also destroyed.

When I bring up the topic of disaster preparation, many people call me a survivalist and doomsday prepper, to name just a few. To me, it makes good sense to take some basic precautions and ensure your family will be protected and prepared in the event of an emergency. My approach to preparing for a natural disaster is broken into categories so I can ensure I address all my possible needs. Some of the most important human reactions, and hardest to control, are panic and fear. When all methods of communication are lost — no television, radio or cellphone coverage — your emergency action plan must kick in so you can focus on survival.

Safe haven

The remainder of the precautions will matter little if you do not have a safe room, basement or other location strong enough to resist the forces of nature. An interior room in the home may work for an EF1 or EF2 tornado, but if the twister makes a direct hit on the structure, your safety may be in jeopardy. Tornadoes EF3 and higher will destroy homes even if they do not directly hit them. The winds generated by these storms can leave nothing behind but debris and bare concrete slabs.

Your first order of business should be to find your safe haven — a space or building that is structurally sound. This structure must be able to endure the forces of wind and strong enough to protect individuals inside from windblown debris traveling at high speeds. Storm bunkers can be installed in your garage and offer very good protection when there is a need to get below ground level.

You may have a basement under your home, which can offer good protection against flying debris. The key to safety when hunkering in a basement is to stay away from chimneys and try to find something structurally sound to get under in the event debris falls into the basement. As a child, my parents always told me to go to the southwestern side of the basement and get under something. It's a good idea to take a sleeping bag or blanket with you just in case you end up staying the night down there.

The third type of shelter is a storm bunker not attached to the home. A downside to this type of shelter is they are constructed at a distance away from the home. This requires the users to be exposed to inclement weather as they move from the home to the shelter. This shelter offers the maximum level of protection because, in addition to getting the occupants below ground, it also reduces the potential for home debris to fall and block safe operation of the door. On April 27, 2011, in Fyffe/Rainsville, Alabama, a storm shelter was partially sucked out of the ground from the force of the passing EF5 tornado.

If having a storm shelter put in, plan to use only licensed companies with experience installing them. Ensure your shelter door is structurally strong and offers a locking device on the inside to prevent an accidental opening of the door during high-wind situations. We've all seen the beginning of the movie "Twister" when the door was sucked open. Once inside the shelter, lock up and move away from the entrance.

Water

After you've worked out your safe shelter, the next item on the list is drinking water. We can live three weeks without food but only three to five days without water before the body begins to fail. Water is a very important element to our survival and needs to be No. 2 on your survival list. Anticipate a need to store a minimum of three to five days of drinking water. Add an additional 5 gallons for meal preparation and sanitation.



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Many survivalists use bottled water or large plastic containers to store drinking water in the safe haven. The type of container is a personal choice. However, after my adventure in Florida with no electricity, I've taken some additional precautions in the event it becomes evident it will be a long time before drinking water becomes available from the tap. At little cost, I built a water filtration system by using stones, sand and activated filtration charcoal to purify collected water and convert it to drinking water. These units can purify hundreds of gallons of water taken from the rain, streams or ponds.

If interested, there are good instructional videos available on building water filtration systems on YouTube. The Mayo Clinic recommends 13 cups of water a day for a male and nine cups for a female. Temperature, activity, your gender and body structure are just a few of the factors used when calculating your needed water intake. The easiest way to plan for drinking water storage is to place at least one gallon per day for each individual in the safe haven.

Weather radio/radio

After water, it is imperative you make connection to the outside world to determine what is going on in your area. Have at least one radio with several extra packs of batteries. You will have no outside communication during the time when electrical systems are down, and alerts and advisories from the local radio stations could be essential to your survival. Try to purchase a survival radio that has the hand-charging feature in the event your battery supply becomes exhausted. The American Red Cross offers an emergency radio system that can recharge by either solar cells or hand cranking. The radio costs about \$60 and also provides a port to recharge a cellphone. For more information, see the American Red Cross website.

Food

When stocking your shelter, in addition to items such as power and granola types of bars, take into consideration the food group categories when planning. Three to five days of eating these products can provide sufficient nutrition to keep you alive but offer little additional extra calories. Unheated cans of soup, pasta products and meat can help fill in the gaps. Attempt to stay away from canned food products containing high levels of sodium. Canned fruit and vegetables will also help ensure you're receiving a stable diet during the event. My emergency food supply not only includes items in the meat, vegetable and fruit categories, but also includes some purchased packaged food items from survival food suppliers. Many of these products do require that water be added to their product, but the meal offers nutrients and vitamins needed to keep the body functioning.

Sanitation

This is one area where I am currently researching to upgrade in my shelter. One person I know has a 5-gallon bucket in his shelter and just inserts a plastic trash bag in it for his sanitation needs. Another option is a marine chemical type of toilet that is commonly used on a boat. During my research, I even found a disposable cardboard type of toilet device that uses disposable bags. When the emergency event is over, you properly dispose of the toilet and used bags. The Internet offers several options to address your shelter's sanitation needs. Take the time to review them all and select what best fits your situation and the number of individuals staying in your safe haven.

Emergency lighting

Some safe havens have windows or skylights that will offer some illumination during the daylight hours, but planning needs to be in place for evening hours. Small LED lanterns powered by batteries are a better choice over petroleum-based powered lanterns, which produce carbon monoxide and could present a fire hazard. Ensure your safe haven has at least two handheld flashlights, along with several packs of new batteries. If kerosene lamps and petroleum-based lanterns are used, make sure there is adequate air movement in the safe haven space. An incoming fresh air duct, along with a strategically located exhaust duct, is very important when these carbon monoxide-producing devices are used in enclosed spaces. Included are propane or petroleum-based cook stoves, which also put off carbon monoxide. Ensure the air within the space remains safe.

Conclusion

People survive disasters by putting forth the effort to plan before the disaster strikes. As demonstrated in other national disasters, until resources can be mobilized and assembled in your area, you are on our own to care for your family and neighbors. Will you be prepared when it strikes?



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WHERE THE RUBBER MEETS THE ROAD

JENNIFER NICKERSON

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While traveling the nation's highways, how often do you see pieces of tire and tread belts along the sides of the road? I see them nearly every trip I take. Almost all of this litter is caused by blowouts and tread separation. So how do we keep our tires from becoming part of this road debris? The answer is vehicle tire maintenance.

Most of us never even think about tire maintenance. Our minds are full of other things such as planning our route, packing the car and making sure the tank is full of gas. Failure to maintain a vehicle's tires, however, could bring a quick end to a family road trip.

The most important part of vehicle tire maintenance is having the tires inflated to the recommended pressure, which can be found on a placard located on the driver-side door jamb and inside the owner's manual. To check the air pressure, always use an accurate tire pressure gauge and check the tires when they're cold. If you check the pressure after driving, the tires will be hot and the gauge will register higher than the actual pressure. This false reading could later cause problems.

As tires wear, patterns develop, and these wear patterns can indicate several problems. The main two types of wear patterns are caused by tires being either underinflated or overinflated. An underinflated tire will develop excessive wear on the edges of the tread. An underinflated tire can flex more than a properly inflated tire. This flexing builds up heat, which can ruin the tire and lead to sidewall cracks. Underinflation can also reduce fuel economy through increased rolling resistance, which makes your vehicle's engine work harder.

Overinflation causes the tire to wear in the middle of the tread. In this case, the middle of the tire takes all the weight, which accelerates the wear. This uneven wear reduces the useful life of the tire.

Another important step in proper tire maintenance is to check for tread depth or boldness. There are a few ways to check for tread depth, including looking at the tire's wear bars. Another method is the penny test. Simply insert a penny into the tread with the date facing you. If you can see the date, it's time to replace the tire. Because the tire might not be wearing evenly, make sure you check the depth in several different areas. The majority of tire troubles occur when there is less than 10 percent of the tread depth remaining. Remember, when it comes to tires, bald is never beautiful. Mechanics check tread depth with a tire wear indicator, which can be purchased at many auto parts stores.

Weather is another issue that usually doesn't come to mind when checking tires, but it can play a part in maintenance. Tires on vehicles that sit parked on hard surfaces or stand in the hot sun for weeks or months can be damaged from lack of use. This damage is caused by ozone and heat and shows up as cracks in the sidewall that weaken the tire.

Bulges and abrasions should also be checked as part of a good tire maintenance routine. A bulge check depends on the type of tire you are using. A certain amount of bulge is normal with radial tires. However, if you notice a bulge on a bias tire, replace it. Any bulge on these tires makes them unserviceable.

On a radial tire, some bulges are not defects. These bulges are the result of how the tires are made. Different manufacturing techniques cause different types of bulges. The best thing to do is ask your tire company if the bulge is dangerous. However, any abrasion that goes all the way through the rubber to the cords means the tire should be replaced. This type of damage is too risky to leave to chance.

Before you hit the road, take the time to check your vehicle's tires. A good tire inspection helps to make a safe and happy trip.



DIRTY CANOPY

CHIEF WARRANT OFFICER 2 DAVID BEAUMONT

All of us, at one time or another, have experienced driving down the road with a dirty windshield. A quick stop at a gas station to clean it and then we're back on our way. If only it were that simple in aviation. Here is my story about a painful lesson in making sure (or not) my canopy is clean before takeoff.

It was another mission in Iraq in which we departed early in the morning, before sunrise, and returned later in the day. On preflight I noticed the canopy had not been cleaned from the previous mission. I notified the crew chief and finished my preflight preparations. The crew chief went back to get some window-cleaning supplies and, while he was gone, ran into the oncoming shift. The oncoming crew chief returned as we were preparing our final walk-around. The dirty canopy was forgotten in shift change and, by this time, my mind was on other things.

Run-up was completed, my FLIR was optimized and we were ready to go. Neither I nor my co-pilot/gunner realized the canopy was still dirty. I'm sure the crew chief who knew it needed cleaning was back in his room by now. I might have caught the situation had I adjusted my night vision goggles inside the cockpit, but I had donned them after preflight and adjusted them before setting up my cockpit.

We took off and completed the first half of our mission. During the second half, the horizon began to get lighter. Before the sun actually broke over the horizon, the ambient light was sufficient for me to turn off the night system. It is at that moment I realized I had not ensured the canopy was cleaned. It was difficult to see through all the splattered bugs, dirt and grime that coated it. I knew the flight was only going to get worse when the sun became visible.

We were flying in spread formation at this point, so keeping my wingman in sight wasn't a problem. Looking for traffic over congested Baghdad airspace was more difficult. Every turn that pointed us to the east was painful. I found myself putting the aircraft out of trim to avoid needing to look straight forward. After more than an hour of squinting and struggling to see what was out there and where we were going, the mission was finally completed.

This flight ended without incident and, while the story might seem anticlimactic, an important lesson was learned. A simple dirty canopy increased pilot workload exponentially. Concentration was stripped away from flying and the mission at hand to try and make out what was on the other side of that canopy. An obstacle could have been easily missed and caused an accident. Free lesson: Ensure canopies are clean, both inside and outside. It is a simple task that isn't really given much thought, but it will be a big stressor the day it's forgotten.



ARMY STRONG.



ACCIDENT BRIEFS

AVIATION

UH-60M

Class A

A passenger was killed and the aircraft was destroyed when it crashed on short final.

CH-47F

Class A

The aircraft's main rotor system contacted a ridge during pinnacle landing and crashed into the ravine. One crewmember died and the others were injured.

AH-64E

Class B

The crew experienced an overspeed condition during flight and landed hard, resulting in damage to the main landing gear and fuselage.

GROUND

Army Combat Vehicle

Class A

A Soldier died after he was struck by an M1126 Stryker during training.

Personnel Injury

Class A

A Soldier drowned while swimming at a river crossing with other Soldiers.

A Soldier drowned when he was swept away by the current while swimming in a river.

DRIVING

PMV-4

Class A

A Soldier was killed when he lost control of his vehicle on the interstate, entered the median and struck a tree. He was not wearing his seat belt. Local authorities stated the Soldier was traveling at a high rate of speed.

A Soldier died after his vehicle rear-ended a semi-trailer on the highway.

A Soldier died when he was ejected from his vehicle as it overturned numerous times.

A Soldier died after he crashed his vehicle at an intersection.

PMV-2

Class A

A Soldier was killed at an intersection while on a group ride with two other Soldiers. The Soldier had completed the Motorcycle Safety Foundation's Basic *RiderCourse* and was wearing all of his personal protective equipment.

A Soldier died when his motorcycle ran off the road and struck a tree.

A Soldier riding as a passenger on a motorcycle was paralyzed when the operator crashed. The operator was treated for fractures and released.

A Soldier was killed when he lost control of his motorcycle in a curve and crashed. The Soldier was wearing full PPE and had completed the MSF's Experienced *RiderCourse*.



ARMY STRONG.

